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DISASTERS

FROM

VACCINATION.

REPRINTED, FROM A PRIZE ESSAY ON VACCINATION
BY EDWARD BALLARD, M.D.

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THE MOTHERS' ANTI-COMPULSORY VACCINATION
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DISASTERS

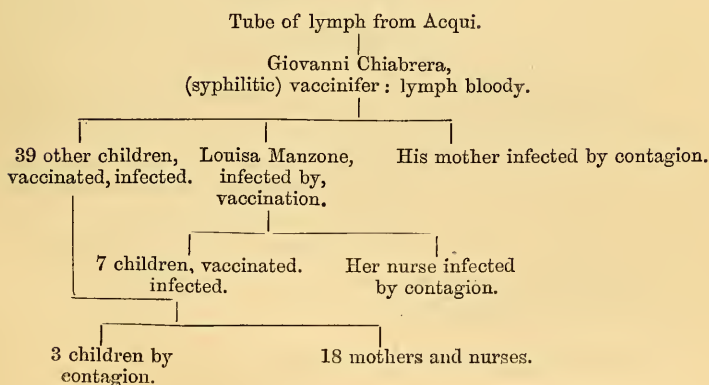
FROM

VACCINATION.

The instances of reputed vaccino syphilitic inoculation which have produced the greatest impression upon the public mind are those in which vaccination has been followed by syphilis in a number of children vaccinated from the same source, and where the disease has spread to mothers, nurses, brothers, sisters, &c., in the locality, after the manner of an epidemic disease. Such instances have been truly termed *disasters*. *Four such disasters* have been more or less carefully recorded, and I propose now to consider them, and to enquire how far they afford evidence of the fact of vaccino-syphilitic inoculation, or whether the occurrences are capable of any more probable explanation.

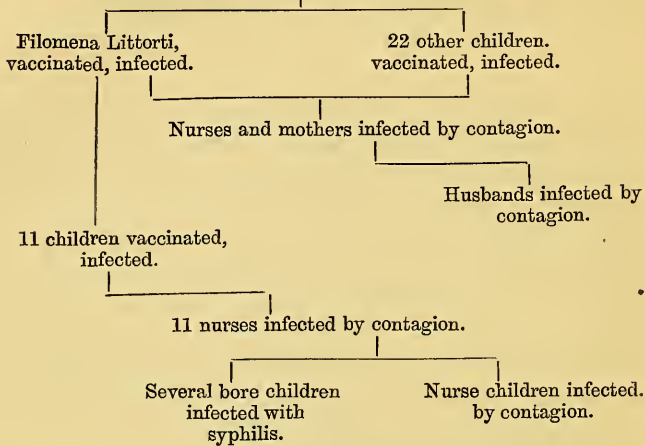
GENEALOGICAL SCHEMES OF FOUR SERIES OF REPUTED VACCINO-SYPHILITIC INOCULATIONS.

1. *Rivalta series.*



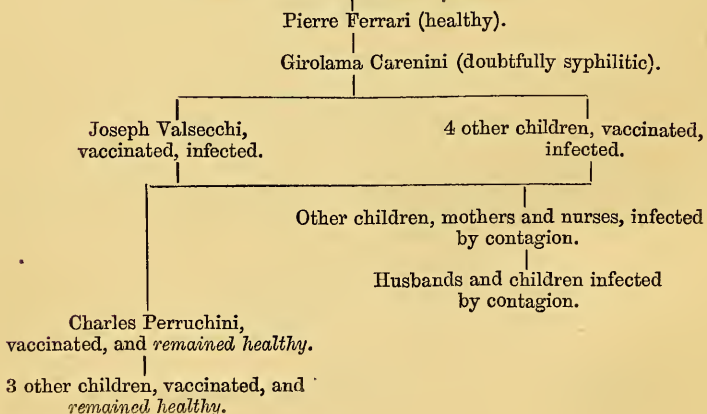
2. *Lupara series.*

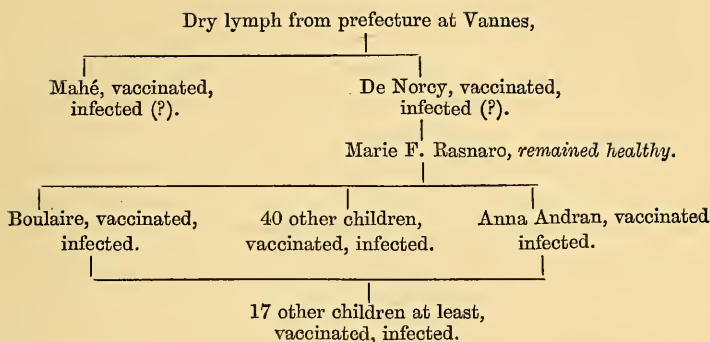
Tube of lymph from Campobasso, bloody, vaccinifer syphilitic (?).



3. *Bergame series.*

Preserved lymph from previous season.



4. *Auray series.*

1. *The Rivalta series.*—This series was not, indeed, the first in point of date, but it was the first to attract public attention by the magnitude of the disaster. The particulars were first furnished by M. Cerisse,* whose information has since been supplemented by a commission of inquiry instituted by the Government. I will abridge the account as it may be gathered from the various sources at our disposal as much as is consistent with perspicuity.

On May 24th, 1861, a child, residing with his parents at Rivalta, named Giovanni Chiabrera, was vaccinated by a surgeon named Cagiola with lymph preserved in a tube sent to him from Acqui. He was eleven months old. His previous history is that two or three months before his vaccination he had been used to draw the breast of a woman unquestionably affected with syphilis. His father, although said to have been the Don Juan of his village, containing a population of about 2000 souls, presented no trace of any recent or former syphilitic infection. Indeed, according to the account given, syphilis was a disease unknown up to this time in the place. That the child's mother was not syphilitic is shown by the fact that at a later period she was infected from her own or some other child. Chiabrera, then, was most probably infected with syphilis to start with. The

* 'L' Union Médicale'; November, 1861, p. 259, to February 21st, 1862.

vaccination, as might have been anticipated in such a case, pursued a regular course. On the tenth day from vaccination, however, he began to suffer from diarrhœa, which, continuing, led to a marasmus, of which he died in the following October.

It was in this month of October that the commission made its inquiry, and it was found that the mother of Chiabrera had then primary syphilitic ulcerations beneath the nipples. The child was also found to have some erythema about the anus, which the diarrhœa might account for, as well as on the prepuce, and a little excoriated papule on the free border of the latter; the inguinal glands were swollen and hard, and he suffered from alopecia. It is remarkable that the father was found at that time not to have been infected. If we say that the child imparted the contagion to the mother, the great difficulty about the case is that nothing was found on examination of the child's mouth. But still, even if she had got syphilis by suckling some other child, the freedom of Chiabrera's mouth would show that he was already constitutionally affected. Put the case how we will, we cannot escape the inference that Chiabrera, either by hereditary transmission (which is not very likely) or from the woman he sucked (which is probable), or in some other way, had become *constitutionally syphilitic*, and was so at the time when his vaccination was performed.

On the tenth day, that is, on the 2nd. of June, forty-six other children were vaccinated from Chiabrera (the *first* vaccinator of the series). Of these, thirty-nine became affected with syphilis, the seven who escaped being among the *last* of the batch vaccinated from him. According to Dr. De Katt, the syphilitic symptoms showed themselves at periods varying from ten days to two months, the mean time being twenty days after vaccination. They consisted first of all in ulcerations at the seat of the vesicles, with specific glandular enlargements, and then, subsequently mucous tubercles, ulcerations of the mouth and throat, cutaneous eruptions, &c. Some of the children died.

Among the thirty-nine infected from Chiabrera was Louisa

Manzone (the *second* vaccinifer of the series). She was aged six months. *On the tenth day*, again, she was used for the vaccination of seventeen other children, of whom seven became affected with syphilis, suffering in the same manner as the thirty-nine infected from Chiabrera. Two months afterwards she was taken to Acqui, and seen by Dr. Silventi, who recognised upon her a syphilitic eruption, with mucous tubercles about the anus and vulva, mucous patches on the commissures of the lips, and indolent glandular enlargements, the primary affection at the seat of the vesicles not even being healed. The child died in September. The nurse who suckled her got ulcers on the breast, and from the various other children who were syphilised the disease spread by contagion to eighteen mothers or nurses and to three other children.

Now, how are we to account for all this? syphilis was not prevalent in the village at the time, and Chiabrera does not appear, at the time he was vaccinated, to have been actually suffering under any of the constitutional manifestations of the infection he had undergone; so that I do not see how the infection of the thirty-nine children vaccinated from him could be attributed to anything but the introduction with the vaccine virus taken from his arm, of the syphilitic virus at the same time, and that both were taken from the same source. With regard to the second vaccinifer, Manzone, what we have specially to remark is that if the seven children vaccinated from her, and subsequently suffering from syphilis, were also, as is most probable, actually infected in a similar manner to those infected from Chiabrera, we must admit and explain as best we may the fact that the lymph taken from Manzone's arm communicated syphilis at the time when Manzone herself, not having yet undergone the primary manifestation, *could not have been constitutionally infected*. This appears to have been one of M. Ricord's difficulties in regard to the Rivalta series. The explanation which I suggest is this, that the syphilitic virus from Manzone, which operated in the seven vaccinated from her, was not a virus manufactured in Manzone's system. Clearly it was not,

could not be that, but was *a portion of the identical virus obtained from Chiabrera* placed originally in the punctured spot, and undergoing there those local changes and possibly that *local reproduction* which would ultimately result in the chancre when the vaccine disease had come to an end. Possibly this explanation, if accepted, may account further for the fact that only seven out of seventeen vaccinated from her were syphilised; whereas thirty-nine out of forty-six vaccinated from the constitutionally affected child Chiabrera were syphilised. There must have been some cause for this great disproportion; it may lie in the fact (partly) that in Manzone's case the vesicle was not in all parts equally impregnated by the virus. It is to be recollected that the operation of the virus is not dependent upon quantity, but upon quality.

2. *The Lupara series*.—This series of reputed vaccino-syphilitic inoculations occurred in 1856, but was kept secret until the Rivalta series had been made public, and the subject was undergoing discussion in medical circles. M. Marone, in whose practice it occurred, and who published his account of it in 1862,* states that he had not dared to make it known before, partly because of his own reputation, and partly because he feared that he should injure that of vaccination in general. The publication of the Rivalta cases showed him that he should keep silence no longer. The following is the summary furnished by M. Depaul †:—"At the close of October, 1856, M. Marone obtained some lymph in tubes from Campobasso; it was transparent but tinged with blood. A large number of infants were vaccinated, and twenty three of them were infected with syphilis. He gives the names and the ages, which last varied from five to ten months. All these children, as well as their parents, were healthy at the time of the vaccination. The vaccinal eruption proceeded regularly up to the period of desiccation; but then the dry crust began to soften anew, and when it fell off an ulcer with

* 'Impraziale de Florence,' No. 5, 1862.

† 'De la Syphilis Vaccinale, &c.' p. 108.

indurated base was found to occupy its seat. In other cases the dry crust remained adherent for an unusual length of time, and then fell off. At the expiration of a few days the cicatrix re-opened, and a sore was produced, having all the characters of an indurated chancre, and lasted a month or six weeks. In all the subjects indolent, non-suppurating, enlarged glands in the axilla were observed. In all of them also, towards the middle of January, the general symptoms of syphilis appeared—roseola, papules, pemphigus, mucous patches on the lips, mouth, anus, and genitals, with inguinal and cervical glands engorged. The nurses were infected in their turn with indurated chancres on the breast; and, at a later period, that is after five or eight weeks, they had also general symptoms, roseola, psoriasis, impetigo, mucous patches, &c. In their turn, also, the mothers imparted the disease to the fathers. M. Marone has since learned that the vaccine sent from Campobasso had been furnished by a little girl who died some time after vaccination from an eruptive affection, the character of which, however, has not been thoroughly determined.

Filomena Littorti, one of the twenty-three infected, served for new vaccinations. Eleven infants were contaminated. First they had the characteristic primary affection, and then the consecutive phenomena. Mothers were again contaminated, and they infected others. The disease having been at last recognised, a specific treatment was instituted; but, nevertheless, several of the children died. Eleven nurses, infected by the vaccinated children, infected, in their turn, other children who were not vaccinated, but who had been suckled by them. Several of the contaminated women, too, having fallen pregnant, were confined either prematurely or at full term of children, dead or living, but *in every case bearing the marks of congenital syphilis.*"

This, again, is a series where the probabilities are quite against the idea of accidental or fortuitous infection, syphilis prior to 1856 not having been observed by M. Marone among the peasants of Lupara. It is pretty nearly the

counterpart of the Rivalta series. It is defective, however, in some points. We learn nothing absolute about the child from whom the lymph was taken; but it is tolerably certain that the lymph itself contained, *somehow*, syphilitic virus (it might have been accidentally), and absolutely certain that first vaccinia and then syphilis resulted from its use. In favour of the hypothesis that the child was syphilitic, there is the fact that, putting syphilis aside, there are very few eruptive diseases of infancy (except the exanthemata) which are of a fatal character. It is to be regretted that the proportion of those vaccinated in the first and second generations with the Campobasso lymph who became infected is not stated, together with the day of eruption on which lymph was taken from Littorti. Still, we meet here with a similar occurrence to what we saw in Manzone's case, namely, the transmission of syphilis prior to its constitutional development, and as I believe simply *mediately*.

3.—*The Torre de Busi or Bergame series*.—'This series was reported to the Conseil de Santé of Bergame, in 1863, by Dr. Adelasio, and is included in a paper read to the Medical Congress of Lyons by M. Viennois.* The account is a very long one, and I shall therefore content myself with giving an abstract of it.

In the autumn of 1861 M. Quarenghi, a physician at Torre de Busi, vaccinated Pierre Ferrari with lymph which had been preserved from the last season six months previously. The pustules were well developed, and presented all their normal characters; so good were they that they were selected for the vaccinations of the following season. In none of the subjects vaccinated at this time did the vaccination produce any morbid complications. It is to be observed that Ferrari died a year afterwards, it is said of severe cough (*toux férine*.) The parents, when examined in April, 1863, were found perfectly healthy, and they had a repute of being moral.

On May 8th, 1862, Girolama Carenini, born of parents

* 'De la Syphilis Vaccinale,' &c., p. 303.

young and in perfect health, was vaccinated with the lymph of Ferrari, preserved in tubes. It does not appear on the statement that other children were vaccinated with the same lymph. It is stated by *the mothers* of the children who were vaccinated from Girolama that, although she was plump and of a good colour, they noticed here and there upon her an eruption, which by the description given, was something like chicken-pox. The pustules from which the lymph was taken were fine, and the operation itself was performed *with a needle*, without any blood being drawn. When the child was examined subsequently, five natural cicatrices were found, and there was nothing abnormal upon the body of the child. The parents were also carefully examined, and no trace of any syphilitic affection was found upon them. All that they would admit was that the child had got an eruption from exposure to the sun. Well, from this child, Girolama, six other children were vaccinated on the 15th May (eighth day), and out of the six five were infected with syphilis, but the vaccinator could not recollect whether the one which escaped infection was vaccinated first or last.* In the case of the five infected it is stated that the fall of the crusts was delayed, and that indurated ulcers replaced them, which were followed by secondary symptoms, which were in no case typical but left copper-coloured stains. About the same time mucous patches appeared, and the mothers and nurses were infected, and imparted the disease to their husbands. The disease spread also by contagion to brothers, sisters, aunts, and cousins. Altogether, there is a record of twenty-three persons whom these children infected.

And now comes the remarkable part of the recital (read in the light of other similar series.) One of the infected children Joseph Valsecchi, aged five months, who infected altogether five other persons, was selected on May 23rd for supplying lymph for the vaccination of five other children. It took upon all. In four of the five the healing of the pustules is

* The editor adds a note to the effect that, if M. Quarenghi could not recollect this, how came he to recollect that no blood was drawn.

said to have been rather tardy, and there was some alteration in the form of the cicatrices, and, in two, there had occurred a cutaneous eruption, which got well of itself, and did not affect the general health.

One of these five, Charles Perruchini, served for the vaccination of three more children, who remained perfectly healthy, only one of them presenting the cicatrix a little elevated in the middle.

I cannot regard this as a satisfactory recital. It bears on its face so much evidence of after recollection on the part of the vaccinator. No doubt that the investigations made into the health of the five infected from Girolama and their relatives is accurate enough. I think there is no doubt in the world that they had syphilis after vaccination with Girolama's lymph, but I am not at all satisfied about Girolama's syphilis. Nor am I quite satisfied that the children vaccinated on the 23rd May were vaccinated from Valsecchi—at least, I believe that a man who trusted so much to memory was very likely to be mistaken as to the child he took the lymph from. It is much more probable that the vaccinator was careless and slovenly, and had infected the first series himself in some way. It is true the report goes that he used, not a lancet, which might have been used previously for some other purpose, but a needle; still, even here he might have made an incorrect statement in order to shield himself. All that this recital, in fact, can absolutely tell us is, that the two viruses, that of vaccinia and that of syphilis, may be received at the same spot, and may both, one after the other, be developed there. Besides, we are not told, as in the former series, that syphilis was unknown in the place previously.

M. Adelasio records an additional instance of infection that happened at Almé, in the same province as Bergame. "On Sept. 14, 1863, in the Commune of L——, the child Charles Arrigoni served as vaccinifer to a whole series of children. The vaccine was regular in its course upon all of them. Among these children was the daughter of Dr X——, a physician of the country. This child, in the previous month

of April, had been sent to nurse to a woman, A. E——, apparently in good health, but presenting a fissure on the breast, said to have been caused by the biting of the teeth of her first child, but which had raised some suspicions in the mind of the midwife of the hospital. Three months afterwards Dr. X——'s child had upon the thighs and groins rounded rose spots, some of them flat, and others elevated.

On Sept. 21st (eighth day,) Dr. X—— vaccinated from his daughter two children, Cornago and Corelli, some days after which the rose spots became more pronounced and more confluent, and a fissure of the anus supervened, with engorgement of the cervical glands, and he diagnosed syphilis, in which he was confirmed by one of his colleagues. The child's nurse also had three ulcers on the genitals and indurations in the groins.

The mothers say that the vaccinal pustules of the doctor's daughter were fine, and that no blood flowed during the vaccination. The incubation of the vaccine was a little prolonged in the case of Cornago and Corelli. The crusts fell on the thirty-fifth day, and gave place to ulcerations. Towards the middle of November these two children had mucous patches on the buttocks, around the anus, and on the thighs, and rhagades.”

This case, again, is altogether defective. No doubt Dr. X——'s child was syphilitic, but there is nothing to show that the infection of Cornago and Corelli was not fortuitous—that they received the syphilitic virus from the interior of the vesicle, and from no other source.

I cannot take these Bergame cases into account in the discussion.

4. *The Auray Series*.—The account of this series is given by M. Depaul* in his official report to the Minister of Agriculture, &c., in France. Again I give it in abstract, leaving out nothing in any way, I believe, essential to the forming of a sound judgment. I may say that the first intimation of the

* ‘Bulletin de l'Académie Imp. de Méd.’ t. xxxii, No. 4, p. 201.

occurrence was received by M. Depaul from Drs. Closmado and Denis, of Auray, who accompanied M. Depaul in his visit to the place three months afterwards, and that some additional facts were obtained by a member of the Academy, M. de Kergaradec. It appears that a midwife, named Madame François Lemouel, an experienced vaccinator, who had on two occasions been rewarded for the zeal she displayed, was the vaccinator of the series. She received, on May 20th, 1866, some dry lymph from the prefecture at Vannes, with which, on the next day, she vaccinated two children "in excellent health," named Mahé and De Norcy. Mahé, when visited by M. Depaul in August, was aged fifteen months, and had *two ordinary cicatrices* on the right arm and three on the left. A little indolent axillary adenitis existed on both sides. According to the account given by the family, he had been very ill during the five weeks succeeding the vaccination, and the pustules had suppurated during seven weeks. At the time of the visit, however, he was very well in health, although he had not undergone any specific treatment, and his mother had not suffered in any way.

Jean Marie de Norcy, aged ten months, had, like the preceding child, been suckled by his mother. He was a large and fat child, and appeared in good health. He had on each arm two normal scars, only still a little red. He also had, on both sides, a little indolent axillary adenitis, cervical adenitis, but no eruption or other affection of the skin. The mother had not suffered in health, but, according to her and her husband, the child had been very ill for at least five weeks after the vaccination, the pustules suppurating during all that time. An eruption, which they called "measles," had appeared three weeks after vaccination.

De Norcy was used as vaccinifer on the eighth day for the vaccination of Marie Françoise Rosnaro. She presented on August 20th, on each arm six cicatrices, perfectly normal both in size and colour; no trace of adenitis, cervical or axillary and no eruption upon the skin. In a word, this child was completely healthy, and in excellent general

condition. Her mother, at the time of the visit, was in bed with rheumatismal pains, but M. Depaul could find nothing suspicious about her, and her nipples were free from disease. The father of the child also was found free from all syphilitic infection.

This child Rosnaro was selected as vaccinifer for the next batch of vaccinations, of which more than eighty were made on the 3rd, 4th, and 5th of June. A list of forty-two children who suffered from syphilis, having been vaccinated from Rosnaro, is given by M. Depaul; they suffered, as usual, from primary ulcers at the seat of the vesicles, followed by various secondary affections. Two of these were used as vaccinifers, and their history is as follows:—Boulaire, a girl aged seventeen months, when seen in August, had fallen a way a great deal, and had all the aspect of the syphilitic cachexia. There were two violet coloured cicatrices on the left arm, one upon a very manifestly indurated base, and three similar on the other arm; indolent axillary adenitis on both sides, a little posterior cervical adenitis, and general roseola. The other, Anna Andran, aged nineteen months, was still suckled by her mother. There were three cicatrices of a violet tint, and reposing upon a somewhat indurated base on the left arm, and three on the right; axillary indolent adenitis on both sides, considerable on the right, but less on the left; posterior cervical adenitis, and general roseola.

From these children, Boulaire and Andran, a large number of vaccinations were done, certainly less, however, than from Rosnaro. M. Depaul, however, only succeeded in seeing and examining seventeen of them, and three of these seem to have had nothing amiss with them after the vaccination, but the rest exhibited phenomena similar to those observed in Boulaire and Andran.

Again, I must say that here is a series which has not received the amount of investigation which was required to establish the origin of the syphilis in a vaccine vesicle contaminated from the subject on which it existed. We start with the dry lymph from the prefecture, but we are told nothing about the child

from whom it was taken. Was it impossible to have discovered this? Then, the two children, Mahé and De Norcy, having been vaccinated, were ill: probably they were infected with syphilis, but even this is not clear to my mind. Still, it does not follow that the lymph from the prefecture was in fault. There was an intermediate agent, of whom we are told nothing but that she was a zealous vaccinator; possibly she was *too* zealous, and not sufficiently careful. And, moreover, she was a midwife, and might have had syphilis herself, for anything we are told by M. Depaul, or have become in some way contaminated with the virus, or have got her clothing contaminated and have wiped her lancet upon it, or in some such way infected the children that she vaccinated. Who can tell? She is just as likely to have been in fault as the vaccine in any part of the series.

And then the odd thing is that Rosnaro, in the second generation from the dry lymph, did not suffer from syphilis at all, and yet, if we are to believe M. Depaul, communicated the disease from her vesicles to forty-two other children. How was this? If Mahé and De Norcy received the syphilitic virus at all, and if Rosnaro was the link between them and the forty-two of the third generation, Rosnaro probably also received the virus into her arm; and if so, why did she not suffer from syphilis? Was she already congenitally infected, or had she already had the disease fortuitously? We are told that she and her parents were healthy, only her mother kept her bed for rheumatismal pains, in which M. Depaul's experience could discover nothing syphilitic. Still, M. Depaul might have been wrong, and these pains might have been syphilitic, but we do not know that this is even probable. Here, then, is a break which we cannot get over. Mahé and De Norcy doubtfully infected somehow. Rosnaro (second generation) not infected; there is no real occasion why she should have been, for vaccinal virus does not always give syphilis when taken from a syphilitic subject, nor yet always when taken from a child into whose arm the virus of vaccinia and syphilis have both been deposited, and who

subsequently suffers from both diseases. And then forty-two children infected (third generation), and from two of these a number more, For my own part I must decline, until other facts may be forthcoming, to accept the inference that this is certainly a true series of vaccino-syphilitic inoculations, in the sense in which this term is used. No doubt vaccine and syphilitic virus were both deposited in the same puncture at the same time, wherever the two diseases appeared, but there is much doubt on my mind whether both came out of the same vesicle.

VACCINAL SYPHILIS.

Reprinted from the "Medical Times and Gazette,"

SATURDAY, FEBRUARY 1, 1873.

"The important subject of vaccinal syphilis came again before the Medico-Chirurgical Society on Tuesday evening, when a paper was read by Mr. Hutchinson detailing two new cases. He also drew some general deductions from the facts as already ascertained; which, together with others elicited in the course of the discussion that followed, constitute the most important practical suggestions yet made with regard to this most unsatisfactory subject. That syphilis could be communicated by vaccination was, though admitted abroad, long disputed in this country. Since the publication of Mr. Hutchinson's paper, and a communication by Mr. Thomas Smith to the Clinical Society, where the patient was exhibited, it can no longer be so. We have now emerged from the region of doubt to one of belief in the

possibility of such an untoward occurrence, and, in accordance with the practical turn which most professional discussions sooner or later take in this country, we have promptly begun to seek a remedy for the possible evil.

The patients whose cases Mr. Hutchinson narrated came to him seeking relief for other maladies. One, a man of middle age, came for iritis, and was found to be covered with a true syphilitic rash, and to have open vaccination wounds which had assumed the characters of chancres. He had been vaccinated from a puny child, which, when seen by Mr. Hutchinson, had no other indication of syphilis than a somewhat flattened nose. A month after vaccination the sores formed on the arm, and in due course the secondary rash appeared. None of the others vaccinated from the same child suffered. This man soon got well under appropriate treatment.

The second case was that of a lady over 40, who consulted Mr. Hutchinson for a urethral growth. It was seen that she was covered with the stains of a syphilitic eruption, and on inquiry it was found that this had followed on vaccination, that she had suffered from iritis, and had gradually recovered under the use of anti-syphilitic remedies. The child from which she was vaccinated had condylomata round the anus when teething, as had a child born of the same parents previously, though their first-born was healthy.

In such a sketch as this it would be impossible to go into the minute details necessary to bring out clearly the facts which established these cases as instances of vaccinal syphilis: we must refer our readers to the original paper, published elsewhere in our columns. Suffice it to say that Mr. Hutchinson was able, so far as we could understand, to bring the truth of his facts as well as of his theories home to the minds of those present. Difficulties were raised, but upon the whole fairly answered. Thus, the question of immunity, as experienced by some, seemed not easy to get over; but it was elicited that where several individuals were vaccinated from the same child, those who suffered were the last, or nearly so,

who received lymph from the arm of the infected child.

Heretofore, as we have said, it has not been admitted that, if due care be taken, syphilitic infection by vaccination is possible. Especially has this been urged by the Crown officers when asked to encourage heifer vaccination. The facts now before the public will tend to rouse them, if they have not been roused already, from the false security into which they have been lulled. And, as was stated at the meeting, it is plain that our compulsory vaccination laws cannot be maintained unmodified. It is true that the number of instances yet before us is small, but we also well know the manifold inducements to keep these secret. In point of fact, nearly all the cases reported have crept out accidentally ; and if a full and searching investigation were made—could we for the time being create a medical “Palace of Truth,”—we doubt not but that many more facts might be acquired. Nevertheless, what we do know suffices to warn us of the possibility of the dreadful contamination, and warns us to provide accordingly.

In the meantime it is generally agreed that the vaccine lymph even of a syphilitic child, if perfectly pure, cannot communicate syphilis from one individual to another. This may be true, or it may not ; at all events, it is the current belief, and facts seem to uphold it. On the other hand, the impression is that if blood corpuscles, red or white, or other formed material, enter into the fluid used for vaccination, there is a risk of syphilitic contagion. It has been said that the infected individuals have been the last to be vaccinated from the diseased child ; and as it is the custom with some either to scrape or squeeze the vaccine vesicle with the lancet, so as to procure the greatest possible quantity of vaccinating fluid, it would seem as if the corpuscles procurable from the walls of the vesicles were a possible means of contamination. Whether this be so or not, it is plain that every possible means must be adopted for preventing the contamination of the vaccine liquid with solid particles other than those itself contains.

But another very serious question arises. In the instance of the lady seen by Mr. Hutchinson, there was a desire to obtain vaccination direct from the heifer, but no fluid could be obtained. The child selected was in many respects the picture of health at the time of vaccination, though subsequently condylomata were developed round its anus. As the law stands, infants must be vaccinated before they are three months old; but, apart from snuffles, it is quite possible there may be no manifestation of constitutional syphilis till they are six or eight months old, or even it may be later. It is not fair to subject healthy infants to the risk of vaccination from others, which, though healthy at the time, may subsequently show signs of inherited taint. It is quite plain from past experience that heifer vaccination cannot be kept up, save in times of public excitement, except Government intervene; and it is not fair to subject people's children to risks such as those which vaccination-syphilis implies, with no alternative save to go to prison. The risk admitted, the option must follow, or the law will fall to the ground. Moreover, the risk admitted, much greater care even in ordinary cases is necessitated, and the practice of vaccinating many children from one must be held at all events open to suspicion. And that the risk does exist, all, we think, must now admit. In this matter the thanks, not only of the Profession, but of the public, are due to Mr. Hutchinson for the pains he has taken in the execution of his self-imposed and ungrateful task. Had his cases been less convincing, had they been brought forward in a less perfect manner, he would have failed to convince us of the reality of the danger. He himself would have been looked upon as a raiser of false alarms, and the public would have again been lulled into a dangerous feeling of security. Much yet remains to be done before the matter is finally settled, and the mode of possible infection established; but forewarned we are forearmed, and, recognising the possibility of the danger, we are in a position to provide against it. Knowledge does not bring panic, but confidence."

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